Right Bank (Bypass) De-Watering, Fish Recovery and Fish Ladder Monitoring

With fish recovery teams notified and on stand-by, and when operators are ready, excavators will begin to break the left bank (intake side) cofferdam upstream and slowly reintroduce water to the de-watered left bank. The procedure for left bank re-watering is as follows:

Thirty minutes before the left bank berm is broken, three turbidity readings will be taken at ten-minute intervals to establish background turbidity levels 300' downstream of the active work area.

Water reintroduction will occur slowly over the course of two hours. After the first water release, water reintroduction will be continuously monitored for turbidity fluctuations at a point 300 ft. below the worksite. The flow through the left bank will be allowed to increase slowly once turbidity begin to stabilize.

Two crew members will hold a fish-exclusion net across the berm break point while river water re-infiltrates the left bank riverbed. Once enough water has been reintroduced into the left bank area to support fish travel, the exclusion net will be removed, and fish will be allowed to travel through the left bank. When bypass channel flows have reached 20cfs, fish recovery surveys will begin. Fish recovery will occur in three phases:

A 4-person crew will begin an initial adult salmonid survey once flows have dropped to 20 cfs. This volume will allow flowing water to infiltrate the riverbed, while allowing survey crews to easily identify, capture, and recover adult salmonids that may be holding in deeper portions of the bypass channel. The crew will walk from the upstream point of water diversion down to the end of the HDPE liner, and will remove any adults entrained in this low-flow area before stranding can occur. Any entrained adults will be transported on-foot via 3, 5-gallon aerated buckets and flexible rubber "fish tube" transport chambers, back into the adjacent left bank river flow.

Once adults have been cleared of the bypass channel, flows will be cut off at the upstream diversion. The fish recovery crew will begin a second survey at the upstream diversion and will focus efforts on juvenile and small fish recovery. The crew will switch equipment to recovery nets and 5-gallon aerated buckets to temporarily transport all recovered juveniles back to the left bank river flow and released.

Efforts will then focus on clearing the fish ladder of all fish. The recovery crew will seine each fish ladder pool: adult salmonids will be returned to the upstream portion of the river, and all juveniles will be returned to the river below the worksite. Two screened and netted-off 2-inch water pumps will be utilized to lower the fish ladder pools to workable levels. Additionally, a scoured pool exists just beneath the lowest fish ladder cell, and this pool will be seined in the same manner as the fish ladder cells.

Once all fish have been cleared, the downstream entrance to the fish ladder will be restored as necessary to its original elevation to correct for the scouring that occurred during water diversion. The riverbed just upstream of the HDPE liner will be regraded to force any remaining water through the fish ladder. This will allow the cofferdam to be thoroughly de-watered. Upon de-watering, all HDPE liner, geotextile fabric, and Field Turf will be carefully removed as described in Section B of our response, " Electron Close Out Extension Request September 4th, 2020". When ready, river flows will be restored to the right bank, and monitoring of the ladder will resume.

Fish Ladder Monitoring

For the duration of construction of all in-water work, the fish ladder will be monitored twice daily for flow and step height accessibility and any sign of presence of fish. Flows through the fish ladder will remain between 10-55 cfs to ensure that the flows remain attractive to fish. Flows may need to be adjusted if it appears the volume may be too low (and unattractive to migrating adults) or too high (unpassable by smaller fish). The fish ladder will be kept clear of obstructions with any debris removed when necessary. After the in-water construction is complete, the proposed fish ladder monitoring schedule can begin as as follows:

River flows under 700 cfs, every other week

River flows 700 to 1500 cfs, every week

River flows 1500 to 2500 cfs, every two days

River flows 2500 to 5000 cfs, daily

River flows above 5000 cfs, continuous during daylight hours and emergencies

On-site inspection follows a written checklist, and will include:

1) Observation that fish ladder is functional and operational

2) Inspection to ensure channel stabilization remains in place